

L 14514-65 EWT(m) DIAAP/SSD/ASD(a)-5/AFWL/AS(m)-2/AFETR/ESD(ga)/ESD(t)
ACCESSION NR: AP5000327 S/0056/64/047/005/1751/1756

AUTHOR: Rekalo, M. P. 5

TITLE: Phenomenological analysis of the scattering of photons by
nucleons 19

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47,
no. 5, 1964, 1751-1756

TOPIC TAGS: photon scattering, nucleon scattering, phase shift
analysis, scattering amplitude, polarization

ABSTRACT: The author considers the minimum number of measurements
that constitute a complete experiment for the determination of the
photon-nucleon scattering amplitude. It is shown that 11 real func-
tions are necessary for this purpose, six moduli of the amplitudes
and five relative phase shifts. Six of these quantities can be de-
termined by using linearly polarized photons and an unpolarized tar-

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get, four can be determined by measuring in addition the azimuthal asymmetry of the initial-photon polarization, and the last quantity is determined by using scattering of circularly polarized photons. In fact, measurement of the differential cross section, recoil-nucleon polarization, and the asymmetry for initially polarized photons determines 14 amplitude combinations, from which the 11 independent combinations can be determined. Ways of extracting the acquired information without using circularly polarized initial photons, or without using a polarized target, are also mentioned. Orig. art. has: 14 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainiskoy SSR (Physicotechnical Institute, Academy of Sciences UkrSSR)

SUBMITTED: 21Mar64

ENCL: 00

SUB CODE: NP

NR REF SOV: 004

OTHER: 005

Card 2/2

L 16504-65 EWT(m)/EWA(m)-2 Peb ESD(dp)/SSD/AFWL/ASD(a)-5 JFW
ACCESSION NR: AP5000348 S/0056/64/047/005/1886/1892

AUTHOR: Rekalo, M. P.

TITLE: Annihilation of antibaryons¹⁹ at high energies 13

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47,
no. 5, 1964, 1886-1892

TOPIC TAGS: pair annihilation, baryon antibaryon pair, Regge pole,
helicity amplitude, differential cross section, asymptotic property

ABSTRACT: The processes $\bar{N} + N \rightarrow \pi + \gamma$ and $\bar{Y} + N \rightarrow K + \gamma$ are con-
sidered at high energies and small product-particle angles. Appli-
cation of the Regge pole hypothesis shows that such annihilation
processes have two asymptotic regions, which depends on the angles
between the produced γ quantum and the meson. One region corresponds
to the formation of the γ quantum in the direction of the antibaryon
momentum, with the meson then being emitted in the direction of the

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ACCESSION NR: AP5000348

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nucleon momentum, and the second region corresponds to formation of a γ quantum in the direction of the nucleon momentum. Expressions are obtained in both regions for the helicity amplitudes, and these expressions are then used to calculate the differential cross section and the different polarization coefficients. Isotopic relations between the cross sections as functions of the Reggeon isospin are derived. It is stated in the conclusion that although the results are based on the asymptotic behavior of the poles, many of the features of the process, such as the spin structure of the amplitudes and the oscillating nature of the scattering amplitudes at large angles, hold true also in the case when the analytic properties in the complex j -plane are more complicated than in the pole analysis. "In conclusion I thank A. I. Akhiezer and D. V. Volkov for a discussion of the results." Orig. art. has: 9 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR
(Physicotechnical Institute, Academy of Sciences UkrSSR)

Card 2/3

L 16504-65

ACCESSION NR: AP5000348

SUBMITTED: 16May64

ENCL: 00

SUB CODE: NP

NR REF SOV: 005

OTHER: 002

Card 3/3

AKHIYEZER, A.I., akademik; REKALO, M.P.

Relations between photoproduction amplitudes in a unitary symmetry model. Dokl. AN SSSR 159 no.2:298-299 N '64. (MIRA 17:12)

1. Fiziko-tekhnicheskiy institut AN SSSR. 2. AN UkrSSR (for Akhiyezer).

L 58458-65 EWT(m)/T/EWA(m)-2
ACCESSION NR: AP5013665

UR/0386/65/001/001/0015/0019

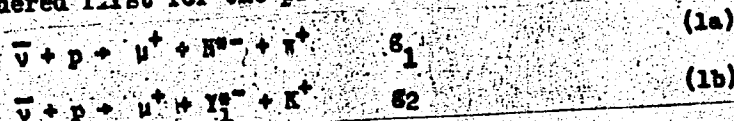
AUTHOR: Rekalov, M. P.

TITLE: Baryon resonances produced in weak interactions and unitary symmetry

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 1, 1965, 15-19

TOPIC TAGS: elementary particle interaction, baryon resonance, weak interaction, unitary symmetry

ABSTRACT: The article analyzes on the basis of unitary symmetry the relations between the amplitudes for the formation of baryon resonances belonging to the irreducible representation SU(3) of dimensionality 10, upon interaction between an antineutrino and nucleons. The consequences of the U-spin selection rules $\Delta U = 1/2, 3/2, 5/2$ are considered first for the processes



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ACCESSION NR: AP5013665

$$\bar{\nu} + p \rightarrow \mu^+ + Y_1^{0-} + \pi^+ \quad g_1' \quad (1c)$$

$$\bar{\nu} + p \rightarrow \mu^+ + \pi^0 + K^+ \quad g_2' \quad (1d)$$

If $\Delta U = 1/2$, then the amplitudes of processes (1a)--(1d) satisfy the relations

$$g_1 + \sqrt{3} \quad g_2 = 0, \quad g_1' + g_2' = 0 \quad (2a)$$

For the case $\Delta U = 3/2$ there are no relations; on the other hand, if the selection rule $\Delta U = 5/2$ is satisfied, then

$$g_1 \sqrt{3} = g_2, \quad g_1' = g_2' \quad (2b)$$

For processes wherein negatively charged isobars are produced by antineutrino-nucleon interaction

$$\begin{aligned} \bar{\nu} + n &\rightarrow \mu^+ + N^{0-} + \pi^0 \\ \bar{\nu} + n &\rightarrow \mu^+ + N^{0-} + \pi^- \\ \bar{\nu} + n &\rightarrow \mu^+ + Y_1^{0-} + K^0 \end{aligned} \quad (3)$$

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ACCESSION NR: AP5013665

in which the strangeness does not change, and the reactions

$$\bar{\nu} + n \rightarrow \mu^+ + \pi^- + K^0$$

$$\bar{\nu} + n \rightarrow \mu^+ + \pi_1^- + \pi^0$$

$$\bar{\nu} + n \rightarrow \mu^+ + \pi_1^- + \eta$$

$$\bar{\nu} + n \rightarrow \mu^+ + \pi^- + K^0$$

(4)

in which the strangeness changes it is found that when $\Delta U = 1/2$ the following relation holds between the amplitudes

$$\sqrt{2} f_1 + \sqrt{3} f_2 = 0.$$

(6)

$$f_1' = \sqrt{3} A_1 + \sqrt{6} A_3, f_2' = -\sqrt{2} A_1 + A_3, f_3' = A_1 - \sqrt{8} A_3 \quad (7)$$

where A_1 and A_3 are the amplitudes for the production of final hadrons with $U = 1/2$ and $3/2$. From (7) we have

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$$f_1' + \sqrt{6} f_2' + \sqrt{3} f_3' = 0 \quad (8)$$

Equations (6) and (8) go over into a set of inequalities relating the cross sections. No such relations can be obtained for the cases $\Delta U = 3/2$ or $5/2$. The corresponding relations are also found for different values of the U-spin in the annihilation channel ($n\bar{B}$). If exchange of the state with $U = 1/2$ takes place, then

$$\begin{aligned} f_3' = 0, f_1' + \sqrt{6} f_2' = 0 & \quad \text{if } \Delta U = 1/2 \\ f_3' = 0, f_1' \sqrt{2} = f_2' & \quad \text{if } \Delta U = 3/2 \end{aligned} \quad (9)$$

For the variant $\Delta U = 5/2$ all processes of type (4) are forbidden. If exchange is with $U = 3/2$, then

$$\begin{aligned} f_1'/\sqrt{3} = -f_2'/2\sqrt{2} = f_3'/3 & \quad \text{if } \Delta U = 1/2 \\ f_1'/2\sqrt{3} = f_2'/\sqrt{2} = f_3'/3 & \quad \text{if } \Delta U = 3/2 \end{aligned} \quad (10)$$

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L 58458-65
ACCESSION NR: AP5013665

"The author tanks A. I. Akhiezer for interest in the work." Orig. art. has: 10
formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR (Physico-
technical Institute, Academy of Sciences, Ukrainian SSR)

SUBMITTED: 05Feb65

ENCL: 00

SUB CODE: NP, GP

NR REF SOV: 000

OTHER: 004

282
Card 5/5

L 53622-69 EWT(m)/T/EWA(m)-2

ACCESSION NR: AP5013673

UR/0386/65/001/001/0017/0051

AUTHOR: Akhiyezer, A. I.; Rekalo, M. P.

TITLE: Magnetic moments of baryons and SU(6) symmetry

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 1, 1965, 47-51

TOPIC TAGS: baryon, SU(6) symmetry, magnetic moment, proton, neutron

ABSTRACT: The authors show that the relation between the proton and neutron magnetic moments $\mu(p)$ and $\mu(n)$ is conserved even when account is taken of moderately strong interaction. The magnetic moments of baryons, with account of moderately strong interaction, are represented in the form of a sum of the magnetic moments of the baryons without account of the moderately strong interaction and terms corresponding to allowance for moderately strong interaction. Using an expression in terms of the wave functions of the baryons from the decuplet and the baryons from the octet the authors derive a set of expressions relating the magnetic moments of the various baryons

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L 53622-65

ACCESSION NR: AP5013673

$$\mu(p) = 3\mu_1 + 3\mu_2 + 6\mu_3,$$

$$\mu(n) = -2\mu_1 - 2\mu_2 - 4\mu_3,$$

$$\mu(\Sigma^+) = 3\mu_1 + 2\mu_2 + 2\mu_3,$$

$$\mu(\Sigma^-) = -\mu_1 - 2\mu_2 - 2\mu_3,$$

$$\mu(\Sigma^0) = \mu_1$$

$$\mu(\Lambda) = -\mu_1 + 2\mu_2 - 2\mu_3,$$

$$\mu(\Xi^+) = -\mu_1 + 3\mu_2, \quad \mu_3$$

$$\mu(\Xi^0) = -2\mu_1 + 2\mu_2 + 4\mu_3,$$

$$\mu_t(\Sigma^0, \Lambda) + \sqrt{3}(\mu_1 + \mu_2 - \mu_3).$$

Elimination of μ_1 , μ_2 , and μ_3 yields the following relations between the magnetic moments:

$$\mu(\Sigma^+) + \mu(\Sigma^-) = 2\mu(\Sigma^0),$$

which are the consequence of the isotopic invariance

$$\mu(n) + \mu(\Xi^0) = 2\mu(\Sigma_u^-), \quad \Sigma_u^- = (\Sigma^0 - \sqrt{3}\Lambda)/2,$$

which is satisfied in $SU(3)$ symmetry with account of moderately strong interaction, and

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L 53622-65

ACCESSION NR: AP5013673

$$2\mu(p) + 3\mu(n) = 0$$

$$3\mu(n) + 3\mu(\Sigma^+) + \mu(\Lambda) + 2\mu(\Xi^0) - 2\mu(\Xi^-) = 0,$$

$$\mu(\Sigma^+) + \mu(\Sigma^-) + 2\mu(\Lambda) - 2\mu(\Xi^-) + \mu(\Xi^0) = 0,$$

$$3\mu(n) + 2\mu(\Sigma^+) - 2\mu(\Sigma^-) - \mu(\Lambda) + \mu(\Xi^0) = 0,$$

which is satisfied only in SU(6) symmetry. It is emphasized that the relation between the magnetic moments of the neutron and proton is conserved also when account is taken of the moderately strong interaction. The authors present also the relation between the amplitudes of the radiative transitions of baryons from the decuplet to baryons from the octet, valid in SU(6) symmetry broken by a moderately strong interaction

$$M(N^{*+} \rightarrow p + \gamma) = M(N^{*0} \rightarrow n + \gamma), \quad (5a)$$

$$M(Y_1^{*-} \rightarrow \Sigma^- + \gamma) - M(Y_1^{*+} \rightarrow \Sigma^+ + \gamma) = 2M(Y_1^{*0} \rightarrow \Sigma^0 + \gamma),$$

$$M(Y_1^{*+} \rightarrow \Sigma^- + \gamma) = M(\Xi^{*-} \rightarrow \Xi^- + \gamma),$$

$$M(N^{*0} \rightarrow n + \gamma) - M(\Xi^{*0} \rightarrow \Xi^0 + \gamma) = 2M(Y_1^{*0} \rightarrow \Sigma_u^0 + \gamma), \quad (5b)$$

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ACCESSION NR: AF5013673

$$M(N^{*+} \rightarrow p + \gamma) + M(Y_1^{*-} \rightarrow \Sigma^- + \gamma) - M(\Xi^{*0} \rightarrow \Xi^0 + \gamma) + 2M(Y_1^{*+} \rightarrow \Sigma^+ + \gamma) = 0. \quad (5c)$$

Relation (5a) is satisfied at the level of isotropic invariance of strong interaction, relations (5b) hold in SU(3) symmetry, and relations (5c) are satisfied only in SU(6) symmetry. Orig. art. has: 5 formulas.

ASSOCIATION: Fiziko-tehnicheskii institut Akademii nauk Ukrainskoy SSR (Physico-technical Institute, Academy of Sciences UkrSSR)

SUBMITTED: 25Feb65

ENCL: 00

SUB CODE: GP, NP

NR REF SOV: 000

OTHER: 002

Card 4/4

L 65259-65 EWT(m)/T/EWA(m)-2

ACCESSION NR: AP5014237

UR/0386/65/001/003/0031/0035

AUTHOR: Rekalo, M. P. 44, 65

TITLE: Electromagnetic properties of mesons in SU(6) symmetry

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniya, v. 1, no. 3, 1965, 31-35

TOPIC TAGS: meson, particle interaction

ABSTRACT: The relationships between the magnetic moments of charged vector mesons and amplitudes of $V \rightarrow P + \gamma$ decay are studied in SU(6) symmetry (V is a vector meson, P is a pseudoscalar meson). Expressions are derived for the electromagnetic current of the mesons and the decay amplitude. It is shown that $\phi \rightarrow \pi^0 + \gamma$ decay is excluded in SU(6) symmetry, which agrees with experimental data. Orig. art. has: 7 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR (Physico-technical Institute, Academy of Sciences, Ukrainian SSR)

SUBMITTED: 29Mar65

ENCL: 00

44, 65 SUB CODE: NP

NO REF SOV: 000

OTHER: 007

dm
Card 1/1

REFALO, M.P.

Electromagnetic adron production and unitary symmetry. IAd. fiz.
1 no.3:511-523 Mr '65. (MIRA 18:5)

PEKADO, M.I.

Determinability of nucleon form-factors in the case of timelike
transfers of momentum. Izv. fiz. 1 no.6:1066-1070 Ja '65.
(MIRA 18:6)

1. Fiziko-tekhnicheskii institut AN UkrSSR.

REKALO, M.P.

Electric generation of strange particles at high energies. Ukr. fiz.
zhur. 10 no.3:245-259. Mar '65. (MIRA 18:6)

1. Fiziko-tehnicheskii institut AN UkrSSR, Khar'kov.

REKALO, M.P.

Annihilation of a baryon-antibaryon pair producing a meson and a virtual gamma quantum ($\bar{N} + N \rightarrow \pi + e^+ + e^-$, $\bar{Y} + N \rightarrow K + e^+ + e^-$) at high energies. Ukr. fiz. zhur. 10 no.4:357-367 Ap '65. (MIRA 18:5)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

L 31966-65 EWT(1)/EWT(m) DIAAP/IJP(c)

ACCESSION NR: AP5004387

8/0056/65/048/001/0138/0144

AUTHOR: Rekalo, M. P.

TITLE: Inelastic processes at high energies

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 1, 1965, 138-144

TOPIC TAGS: ¹⁹particle scattering, ¹⁷high energy particle, ¹⁷Regge pole, scattering amplitude, isotopic relation, scattering cross section

ABSTRACT: Various inelastic processes at high energies, such as $\pi + N \rightarrow N + \pi + \pi$, are considered in that region of the other kinematic variables where the asymptotic amplitudes are determined by fermion Regge poles. The processes are assumed to go through an isobar-decay stage, so that the corresponding inelastic processes (five-point diagram) can be reduced to a four-particle process. The amplitudes for the corresponding processes are obtained under the assumption that the elastic and inelastic amplitudes have the same type of structure, and that they can be described by specific pole graphs corresponding to reggeon exchange. Isotopic re-

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L 31966-65

ACCESSION NR: AP5004387

lations are considered for these inelastic-process mechanisms, as functions of the isotopic spin of the leading pole and the final particles. Relations between the asymptotic differential cross sections and some of these isotopic relations are obtained in the single-pole approximation. "I thank A. I. Akhiezer and D. V. Volkov for a discussion of the results." Orig. art. has: 1 figure and 11 formulas.

ASSOCIATION: Fiziko-tekhnicheskii institut Akademii nauk Ukrainsskoy SSR (Physics-technical Institute, Academy of Sciences UkrSSR)

SUBMITTED: 21Mar64

ENCL: 00

SUB CODE: NP

NR REF SOV: 005

OTHER: 003

Card 2/2

REKAI, Gabor

Tasks and development of the milling industry, mixed feed production and storage. Elelm ipar 18 no.7:194-199 J1 '64.

REKALOVA, G. I.

Internal photoeffect and a possible scheme of the electron-energy levels in sulfur. P. S. Tartakovskii and G. Rekalova. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 10, 1025 (1940); cf. *C. A.* 34, 7749. The curve for the spectral distribution of the depolarization currents of cryst. S at -185° shows two maxima at $\lambda = 470 \text{ m}\mu$ and $\lambda = 550 \text{ m}\mu$, resp. The analogy between allochromatic and idiochromatic crystals is discussed. A transfer from the $3P$ to the $3D$ state takes place. F. H. R.

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA REKALOVA, G. I.

3

Photoconductivity of auripigment As_2S_3 in strong electric fields. G. I. Rekalova. *Zhur. Tekh. Fiz.* 21, 1041-4 (1951).
 In 5-20 μ thin single crystals of As_2S_3 , Ohm's law holds for both the dark and the photocurrent only up to field strengths of 0.5×10^6 v./cm. at room, and 1×10^6 v./cm. at liquid-air, temp. With further increasing elec. field strength, both the dark and the photocurrent (the latter measured parallel to the direction of the illumination) increase at approx. the same rate, and approx. exponentially. Polarization and the nature of the electrodes unipolar cond. are absent, and the nature of the electrodes (C or Au) makes no difference. There is no indication of beginning satn. up to 2×10^6 v./cm. Exptl. points for samples 6, 10, and 20 μ thick lie on the same curves. This absence of an effect of the thickness in both the dark and the photocurrent indicates absence of an avalanche. On the other hand, impact ionization is very probable. An interpretation of the near-exponential increase of the photocurrent by a broadening of the energy zones which would permit liberation of electrons by light of lower frequency, is not applicable to As_2S_3 illuminated by a Hg-vapor lamp; the absorption limit of As_2S_3 lies at 470 m μ at room, and at 450 m μ at liquid-air, temp., and, consequently, photocond. can be brought about only by the Hg line 430 m μ , whereas the 557-m μ line is inactive, and no discontinuous rise of the

photocond., ascribable to 557-m μ quanta, is observed at any field strength. An exponential increase of the current as a result of increasing mobility of the electrons is improbable. This leaves impact ionization as the only probable mechanism.
 N. Thon

1952

SA. REKALOVA, G-1
Section A

Photo Conduction

537,312.5

8203. Some optical and photoelectric properties of
orpiment (As_2S_3). G. I. REKALOVA. *Zh. Tekh. Fiz.*,
22, 143-7 (No. 1, 1952) *In Russian*.

Measurements of the spectral distribution of
absorption and photocurrent of single crystals of
 As_2S_3 , at liquid air temperature, showed the photo-
current per unit of absorbed radiation to rise over a
frequency interval extending 1200 Å in the short-wave
direction from the long-wave edge of the band of
strong absorption, reaching a maximum at about
1000 Å from this edge. In the zone of weak absorption
(from 4300 Å), photoconductivity is proportional to
absorbed energy and independent of wavelength.

R. QUILLON

84000
S/058/60/000/006/011/040
A005/A001

9.4179

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 6, p. 182, # 14202

AUTHORS: Rekalova, G.I., Verbitskiy, V.A.

TITLE: The Synthesis of Semiconductor Single Crystals of Indium Antimonide
Compound

PERIODICAL: Izv. Leningr. elektrotekhn. in-ta, 1959, No. 3, pp. 300-302

TEXT: InSb single crystals were grown at a specially developed unit by the Chokhralskiy method in an inert gas atmosphere. The initial In and Sb were subjected to zonal recrystallization purification. The primer extraction was started after a two-hour mixing of the smelt and performed while rotating the crucible. It is necessary to orient the primer corresponding to the 110-plane to avoid the degeneration of individual faces during growing.

A.Ya. Freobrazhenskiy

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

VOYTSEKHOVSKAYA, I.A., kand. fiziko-matematicheskikh nauk, dotsent;
REKALOVA, G.I., kand. fiziko-matematicheskikh nauk, dotsent;
KHROPOVA, P.M., assistant

Determination of the optimum parameters of an uncooled antimony-
indium photocell. Izv. LETI no.47:316-334 '62. (MIRA 16:12)

REKANT, N.B.

MARKOV, G.I.; REKANT, N.B.

Testing solar water heaters in Tashkent in 1952-1953. Ispol'.
soln.energ. no.1:202-209 '57. (MIRA 10:11)
(Solar water heaters)

REKANT, N. B. Cand Tech Sci -- (diss) "Study of the reflecting surfaces of solar installations." Mos, 1959. 19 pp with illustrations (Acad Sci USSR. Power Engineering Inst im G. M. Krzhizhanovskiy), 150 copies (KL, 41-59, 105)

SOV/170-59-5-4/18

24(4)

AUTHOR:

Rekant, N.B.

TITLE:

An Investigation of Reflecting Surfaces of Helio-Installations
(Issledovaniye otrazhayushchikh poverkhnostey solnechnykh ustanovok)

PERIODICAL:

Inzhenerno-fizicheskiy zhurnal, 1959, Nr 5, pp 20-27 (USSR)

ABSTRACT:

Optical characteristics of glass and mirrors in helioengineering are determined by a thermoelectric actinometer. The actinometer of Savinov-Yanishevskiy is the main device applied in the USSR for measuring the flux of direct solar radiation. The author used this device in an IU-2 installation devised for determining integral coefficients of glass transmittance and mirror reflection. The integral transmittance coefficient is defined as a ratio of the intensity of solar radiation passed through a specimen tested to the intensity of direct radiation. The integral reflection coefficient is defined as a ratio of the intensity of radiation reflected from a mirror to the solar radiation measured directly.

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SOV/170-59-5-4/18

An Investigation of Reflecting Surfaces of Helio-Installations

The Helio-laboratory of the Power Engineering Institute AS USSR and the Physical Laboratory of the Institute of Glass carried out studies of the spectral and integral transmittance of sheet glass produced by various plants in the USSR. The chemical composition of glass and its optical characteristics are given in Tables 1 and 2 respectively. The author describes a method of determining the integral transmittance coefficient by means of calculations, as the actinometric method calls for the stability of solar radiation which not always takes place. In the calculational method, experimental data on the energy distribution in the solar spectrum at the Earth's surface and on the spectral transmittance of glass are made use of. Figure 2 shows calculational curves for the distribution of solar radiation passed through the glass of various plants. In these curves products $E_0 \lambda \cdot \tau_\lambda$ are plotted versus λ , where $E_0 \lambda$ are ordinates of Curve 1 representing the solar radiation, and τ_λ are coefficients of glass transmittance for the wavelength λ . The integral

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SOV/170-59-5-4/18

An Investigation of Reflecting Surfaces of Helio-Installations

coefficient of solar radiation transmittance T_i is then determined as a ratio of the area bounded by Curves 2, 3 or 4 to that bounded by the solar radiation Curve 1,

$$T_i = \frac{\int_{\lambda_1}^{\lambda_2} \tau_{\lambda} E_{0\lambda} d\lambda}{\int_{\lambda_1}^{\lambda_2} E_{0\lambda} d\lambda}$$

The values calculated by this method are compared with those determined experimentally for sheet glass of several plants and compiled in Table 3 which shows a rather satisfactory agreement between them.

There are 3 graphs, 1 diagram, 4 tables, and 7 references, 5 of which are Soviet and 2 American.

ASSOCIATION: Energeticheskiy institut AN SSSR (Power Engineering Institute of the AS USSR), Moscow.

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82218

S/173/59/012/04/03/003

3.1540(A)

AUTHOR: Rekant, N.B.

TITLE: Study of the Optical Characteristics of a Solar Thermal Plant by a Test Reflector.

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR. Seriya tekhnicheskikh nauk. 1959, Vol. 12, No. 4, pp. 49 - 54

TEXT: Tests were carried out with a test reflector in order to obtain data on the coefficient of reflection. The Energeticheskiy institut AN SSSR (Power Engineering Institute AS USSR) has worked out designs for a solar thermal plant (STP) based on the principle of concentration of radiation energy reflected upon a "Helio-boiler" from a number of flat reflectors. Figure 1 shows: 1 - steam boiler, 2 - tower, 3 - rails, 4 - reflectors. The experimental reflector necessary for the study of the reflection coefficient was designed by Respublikanskiy proyektnyy institut pri Sovets Ministrov Armyanskoy SSR (Republican Designing Institute of the Council of Ministers of the Armyanskaya SSR). The reflector is shown in Photo 2; its dimensions are 3 x 5 m and its reflecting surface consists of 28 flat mirrors of 750 x 720 mm each. A flat screen of 5 x 9 m rotating around the tower served as a receiver of reflected radiation.

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82218

S/173/59/012/04/03/003

Study of the Optical Characteristics of a Solar Thermal Plant by a Test Reflector

The screen surface was divided into 81 squares. Tests were carried out in Echmiadzin on the territory of the kolkhoz imeni Mikoyan. Relation

$$\frac{Q_{\text{ref}}}{Q_{\text{inc}}} = R_c$$

gives the integral coefficient of the entire reflector. [Abstracter's Note: subscript "inc" (incident) is a translation of the original ПАА (padeniye)]. The average coefficient of reflection R_{av} at normal ray incidence was equal to 0.68 ± 0.005 (Table 1). The course of direct and reflected rays is shown in Figure 3. Table 2 shows the distance of the reflector from the screen, reflection area, average and maximum intensity of reflected radiation energy. The results of these tests showed that this method is suitable for determination of the characteristic of the transmission of radiation energy at a distance of 300 - 400 m; the transmission of solar radiation energy by means of polished glass mirrors showed no noticeable atmospheric losses and the total angular error is assumed to be $\varphi \approx 1^\circ$. The quantity of reflection received on the screen was close to theoretical calculation. There are 3 figures, 2 tables, and 2 Soviet references.

Card 2/2

FEDURKIN, V.V.; REKANT, N.B.; BOROZDINA, M.S.

Producing aluminum mirrors by electrolytic polishing. Med.prom. 13
no.10:46-51 0 '59. (MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo instru-
mentariya i oborudovaniya, Energeticheskiy institut Akademii nauk SSSR
i zavod "Elektrosvet" imeni Yablochkova.
(MIRRORS) (ELECTROLYTIC POLISHING)

PHASE I BOOK EXPLOITATION:

SC07/4642

Almaty, Kazakh SSR, Energeticheskii Institut.
Teploenergetika, vyp. 21. Izdat'stvo energii (Heat Power Engineering, No. 21. Use of Solar Energy) Moscow, 1970. 195 p. Krate
slip formatted. 2,500 copies printed.

Sponsoring Agency: Akademyn Nauk SSSR. Energeticheskoy Institut Leonid G.M. Kril'chanskogo.

Keep. Ed.: V.A. Baum, Doctor of Technical Sciences, Professor; Ed. of
Publishing House: G.D. Gershberg; Tech. Ed.: I.Y. Doroshina.

PURPOSE: The publication is intended for power engineers and technologists interested in the industrial utilization of solar energy.

COVERAGE: This collection of 19 articles is a continuation of an earlier collection of 10 articles published in the same issue in 1977. The articles present results of investigations conducted in the USSR during the last three years at the Laboratory on the Use of Solar Energy and Wind in the Energetically Institute of the USSR Power Engineering Institute, of the Academy of Sciences of the USSR. The articles are devoted to the development of solar energy as a promising means of increasing the productivity of the economy. The articles are divided into two groups: the first group is devoted to the development of solar energy as a promising means of increasing the productivity of the economy. The second group is devoted to the development of solar energy as a promising means of increasing the productivity of the economy. The articles are divided into two groups: the first group is devoted to the development of solar energy as a promising means of increasing the productivity of the economy. The second group is devoted to the development of solar energy as a promising means of increasing the productivity of the economy.

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ACC NR: AP6035252 (4)

SOURCE CODE: UR/0377/66/000/004/0057/0063

AUTHOR: Sheklein, A. V.; Rekant, N. B.; Zhukovskaya, Ye. A.; Yurkova, S. V.;
Baulina, M. A.;

ORG: State Scientific Research Institute of Energy im. G. M. Krzhizhanovskiy
(Gosudarstvennyy nauchno-issledovatel'skiy energeticheskiy institut)

TITLE: Optical characteristics of electroconductive glasses coated with a
tin-oxide film

SOURCE: Geliotekhnika, no. 4, 1966, 57-63

TOPIC TAGS: glass, electroconductive glass, tin oxide film, electroconductive
film

ABSTRACT: Results of an investigation of the transmission, light reflection, and
emission coefficients of industrial and laboratory glass samples coated with
electroconductive tin-oxide film are given. The values were analyzed for the
ground-level solar spectrum range (0.3—2.5 m μ) and the spectral range
corresponding to the thermal radiation (4—20 m μ) of radiant energy receivers

Card 1/2

ACC NR: AP6035252

not provided with concentrators. Technological conditions are described for coating the glass with the electroconductive film and the composition is given for some additives for improving the optical parameters. An empirical relation of electric conductivity, measured during the technological process, with the optical characteristics is shown. Orig. art. has: 5 figures and 2 tables. [Based on authors' abstract]

[NT]

SUB CODE: 11, 20/SUBM DATE: none/ORIG REF: 005/OTH REF: 001/

Card 2/2

S/058/63/000/002/023/070
A062/A101

AUTHORS: Yegorov, B. D., Rekant, N. B., Beloliptseva, I. Yu.

TITLE: Absorption of solar radiation by some commercial glasses

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, 69, abstract 2D441
("Steklo. Byul. Gos. n.-i. in-ta stekla", 1959, no. 3 (103),
33 - 37)

TEXT: A method is proposed for calculating the integrated transmittance of glass in the region 0.3 - 2.2 μ of the spectrum by means of the curves of the energy distribution in the solar spectrum and of the spectral transmittance of glass. Results are given in the form of tables for a number of glasses and show a good agreement of the calculated and experimental data.

Yu. Kutev

[Abstracter's note: Complete translation]

Card 1/1

REKANT, N. B.; BOLOGA, M. K.

Optical characteristics of electropolished and anodized
aluminum and some properties of oxide films. Izv. AN Mold. SSR
no.9:3-11 '62. (MIRA 16:1)

(Aluminum coating—Optical properties)

GAHF, B.A.; BOROZDINA, M.S.; REKANT, N.V.

Investigation of the reflecting surfaces of solar apparatus.

Ispol'.soln.energ. no.1:49-61 '57.

(MIRA 10:11)

(Solar energy)

PERE, C.

PERE, C. Experiment on the accelerated determination of corrosion in sea water. p. 265.

No. 2, 1956.

INDUSTRIAL-TECHNICAL SCIENCE

TECHNOLOGY

Ljubljana, Yugoslavia

So: East European Accession, Vol. 6, No. 2, February 1957

"The new Metallurgical Institute in Ljubljana." p. 97. (Rudarsko-Metalurski Zbornik. No. 1, 1952. Ljubljana.)

SO: Monthly List of East European Accessions. Vol. 3, no. 3. Library of Congress. March 1954.

... 47. (S. M. L. 1. 1, 1950, ungrad, Yuroslaviv)

Re: Monthly list of East European Accessions, (LHR, L, Vol. 4, no. 1 Jan. 1945, Incl.

REKAL, C.

Prber, C. Aerodynamic resistance of compact loading columns in furnaces. p. 233.
NUVANSKO-NEVALJSKI ZBORNIK, Ljubljana, No. 3/4, 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955,
Uncl.

REKAR, Ciril, prof. inz.

Corrosion in shipbuilding industry. Brodogradnja 6 no.2:71-76 '55.

REKAR, C.

Copper, arsenic, and antimony in ores, iron, and steel. p. 401

RUDARSTVO-METALURSKI ZBORNIK. (Ljubljana. Univerza. Fakulteta za rudarstvo, metalurgijo in kemijsko tehnologijo. Oddelek za rudarstvo in metalurgijo) Ljubljana, Yugoslavia, No. 4, 1958.

Monthly List of East European Accession (EMEI) L, Vol. 8, no. 6, June 1959,

Uncl.

PLAT, G.; BIVAN, R.

Copper, arsenic, and antimony in ores, steel and iron. Pt. 2. p. 227.

U. LARSEN-EN F. HANSEN I. B. HANSEN. (Ljubljana. Univerza. Fakulteta za rudarstvo, metalurgijo in kemijsko tehnologijo. Odslek za rudarstvo in metalurgijo.) Ljubljana, Yugoslavia, No. 3, 1969.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 1, Jan. 1960.

Incl.

REKASHEVA, A.F.

11B

Degree of polymerization and activity of synthetic blood anticoagulants. A. F. Rekasheva. *Biokhimiya* 9, 178-81 (1944).—The highest anticoagulant activity of the Na salts of the sulfuric esters of cellulose were found in compds of intermediate mol. dimensions (derivs. of hydroxycellulose). H. Priestley

Blood Transfusion Station, Sverdlovsk

GTRSP L Vol. 5-No. 1 Jan. 1952

Belokobyl'skiy, P. and Melnikova, G. P. (L.V. Prigodnyy Institute of Physical Chemistry,
USSR Academy of Sciences), Mechanism of the reduction reactions of aldehydes
by chromous alcoholates, 284-6

Akademiya Nauk, S.S.S.R., Doklady Vol. 78, No. 2, 1951

REKASHOVA, A. P.

227717

USSR/Chemistry - Isotopes, 1 Aug 52
Organophosphorus Compounds

"Investigation of the Reaction Mechanism of
the Reduction of Diazonium Salts. Reduction
With Hypophosphorous Acid," G.P. Mikulatin,
A.P. Rekashova, Inst of Phys Chem imeni L.V.
Pisarzhevskiy, Acad Sci Ukrainian SSR

"Dok Ak Nauk SSSR" Vol 85, No 4, pp 827-830

In the reduction of diazonium salts of hypo-
phosphorous acid, the hydrocarbon radicals be-
come attached to the hydrogens bound to the
phosphorus atom and not to the oxygen. This
is proved in the present work by investigating
227717

the reaction under use of D_2O and by taking ad-
vantage of the different rates of isotopic ex-
change of PH and OH. The work was carried out
in the laboratory directed by A.I. Brodskiy,
Acad Mem, Acad Sci Ukrainian SSR. Presented by
Acad A.N. Frumkin 5 Jun 52.

227717

REKASHEVA, A. F.

USSR/Nuclear Physics - Deuterium Chemistry - Isotopes

1 Jun 53

"The Use of Deuterium in the Investigation of Photochemical Reactions of Organometallic Compounds in the Liquid Phase," G. A. Razuvaev, G. P. Petukhov, A. F. Rekasheva, G. P. Miklukhin; Inst of Phys Chemistry imeni L. V. Pisarzhevskiy, Acad Sci Ukrainian SSR; Gor'kiy State U

Dokl SSSR, Vol 90, pp 569-572

The photo reactions of phenylmercury and diphenylmercury do not proceed alike, although these compds are homologs. The reaction of the first apparently takes place in a reaction "knot" consisting of one molecule of the hydroxide and one molecule of the other reagent. Conversely, diphenylmercury reacts by an open-radical mechanism. Exptl proof of the transfer of the chain by free radicals with the regeneration of the reacting radical was obtained. The above work was done using methyl and ethyl alcs containing deuterium in the hydroxyl group. Presented by Acad S. I. Vol'fkovich 9 Mar 53.

PA 254T95

REKASHEVA, A. F.

1 Mechanism of reduction of diazonium salts. Oxidation of phenylhydrazine. A. F. Rekasheva and B. E. Gruz. *Doklady Akad. Nauk S.S.S.R.* 1977, 237-37 (1978).—Oxidation of PhNHNH₂ in dil. AcOH by hot CuSO₄ soln. in D₂O, with continuous distn of the resulting C₆H₅ and detn of D in it, was studied. Similarly cold oxidation of PhNHNH₂ by ferricyanide in the presence of KOH and D₂O was investigated. In the system PhNHNH₂-CuSO₄-D₂O, the transfer of D amounts to 21%; use of D-labeled PhNHNH₂ (position of D unlabeled) gave in the H₂O-CuSO₄-PhNHNH₂ system a 44% exchange. D-labeled PhNHNH₂ in D₂O system with the oxidizing agent present gave 27% D transfer. During the oxidation there occur simultaneously the isotope exchange and the oxidation proper. In the ferricyanide system, the D transfer from D₂O to PhNHNH₂ oxidation products is 65%; in the oxidation of D-labeled PhNHNH₂ in H₂O it exceeds 100%; when exchange is absent, the D transfer amounts to 74%. Thus in both forms of oxidation the C₆H₅ is formed at the expense of H atoms of the NH links of PhNHNH₂. The proposed mechanism follows: in acid medium CuSO₄ oxidizes PhNHNH₂ to PhN(OH)NH₂, which breaks down with homolytic cleavage without liberation of free radicals in soln., thus assuring transfer of H atoms from the NH group to the Ph residue; ionic cleavage would have transferred H from the more polar HO groups. Cleavage of the "light" molecules requires lesser activation energy than that of the labeled forms, hence the effct. of D transfer is rather low. In oxidation by CuSO₄ in the presence of EtOH, the homolytic cleavage is again not accompanied by radical liberation into soln., and the resulting C₆H₅ has the same D content as that formed in the absence of EtOH. Oxidation by ferricyanide agrees with the formulation proposed by Kislner [*Studies in Organic Chemistry* 1937, pp. 82, 130 (Leningrad Univ. Press, 1938)] with formation of PhN=NH which then cleaves to C₆H₅ and N₂. PhNHNH₂ completely exchanges with D₂O in acid or basic soln. within 1 min. at 20° insofar as the side chain is considered; nuclear H exchange is not observed even in 100 hrs. at 100°.

G. M. Kozlov

REKASHEVA, A.F.

Mechanism of reduction of diazonium salts. Reduction with formaldehyde. G. P. Mikhukhin and A. F. Rekasheva. *Doklady Akad. Nauk S.S.S.R.* 93:1000-1002, 1964. *Chem. Abstr.* 47, 8624h. —The reduction of diazonium salts with CH_2O is believed to proceed in the following series of steps. The 2 H atoms of CH_2O add to the diazotate (cf. C.A. 49, 907a), after which a mono- or bimol. reaction takes place in which the α -hydroxyarylhydrazine decomp. with evolution of the hydrocarbon residue. The relatively low extent of D transfer in tracer studies can be explained by the formation of the hydroxyarylhydrazines, rather than arylhydrazines which form in the ferrocyanide reduction. In the reaction of PhNHNH_2 with PhN_2OH apparently there are formed, resp., PhN_2NH and PhNHNHOH , which in turn yield RH and N_2 and RH , N_2 and H_2O , resp. Thus when the diazonium salt dissolved in D_2O -enriched water at 0° is added slowly to CH_2O soln. in D_2O , with added KOH , and the resulting hydrocarbons are subjected to detn. of D by combustion methods, it is found that the transfer of D into C_6H_6 in the reaction of PhN_2Cl with PhN_2OH is 42%, while in the reduction with CH_2O the exchange is but 22%. C_6H_6 from PhN_2Cl contains 22% D, while PhNHNH_2 yields C_6H_6 with 74% D; the exptl. value is rather close to the expected 50% D average of the two forms of reaction. Thus reduction by means of CH_2O yields intermediates which rapidly and readily exchange their H content for D in D_2O . There is no evidence for direct transfer of H atoms from CH_2O to the hydrocarbon radical of the diazonium salt. However, in the presence of Cu salts such direct transfer does occur (CuSO_4 catalyst); the mechanism of this reaction has been elucidated earlier (cf. Waters, *Chemistry of Free Radicals*); here, RN_2^+ and Cu^+ yield R^\cdot , N_2 and Cu^{2+} , the former reacting with CH_2O to yield RH and CHO , which with Cu^{2+} yields OHC^+ and Cu^+ ; OHC^+ and DO^\cdot yield HCO_2D . G. M. Kosolapoff

Rekashëva, A. F.

USSR/Chemistry - Oxidation reduction

Card 1/1 Pub. 151 - 18/36

Authors : Rekashëva, A. F., and Miklukhin, G. P.

Title : Study of hydrogen displacement processes in certain oxidation-reduction reactions. Part 1.-

Periodical : Zhur. ob. khim. 24/1, 96-106, Jan 1954

Abstract : The method most suitable for the study of hydrogen displacements, during certain oxidation-reduction reactions, is briefly described. The source of the hydrogen, which converts into hydrocarbon during the reduction of diazonium salts with hypophosphorous acid, is explained. It was established that the hydrogen included in the composition of compounds converts very rapidly into deuterium of heavy water when in bond with oxygen but when in bonds with hydrocarbon the interchange of hydrogen atoms is very slow. The interchange of H-atoms of hypophosphorous acid which take part in the formation of the hydrocarbon is not instantaneous but almost identical to the rate of reduction reaction. The effect of catalysts on the rate of H-exchange is explained. Thirty references: 18-USSR; 6-USA and 6-German (1902-1953). Tables.

Institution : Academy of Sciences Ukr-SSR, The L. V. Pisarzhevskiy Institute of Phys. Chem.

Submitted : April 21, 1951

Rekasheva, H. T.

USSR/Chemistry - Oxidation reduction

Card 1/1 Pub. 151-19/36

Authors : Rekasheva, A. F., and Miklukhin, G. P.

Title : Study of hydrogen displacement processes during certain oxidation-reduction reactions. Part 2.-

Periodical : Zhur. ob. khim. 24/1, 106-120, Jan 1954

Abstract : The results obtained during the study of the reaction of reduction of diazonium salts with formaldehyde, reduction of aldehydes with ethyl alcohol in the presence of Al-ethylate and oxidation of phenyl hydrazine with CuSO_4 and potassium ferricyanide are described. The mechanisms of the investigated reactions and the homolytical processes of bond cleavage in solutions are explained. It was established that the mechanism of diazonium salt reduction with formaldehyde is different from the mechanism of reduction with alcohol or hypophosphorous acid. The presence of large deuterium contents in the reaction products indicates that the hydrogen atoms of the formaldehyde do not immediately convert into the radical of the diazonium salt. Twenty three references: 13-USSR; 5-USA and 5-German (1903-1954). Tables.

Institution : ...

Submitted : April 21, 1953

REKASHEVA, A.F.

3

Sources and paths of hydrogen in some reactions of organic compounds. G. P. MIKHAILOV and A. F. Rekasheva. *Voprosy Khim. Kinetiki, Mekhaniki i Reaktivnosti*, Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1955, 24-35.—Review with 10 references concerning the H migration in heavy metal salts of org. acids, Cannizzaro reaction, reductions with $(\text{iso-PrO})_2\text{Al}$, formate reductions, and reactions of diazonium salts (cf. Razuvaev, *et al.*, C.A. 49, 12340e). G. M. Kosolapoff

(1)

REKASHEVA, A.F.

✓ Migration and uniform distribution of sulfur in rubber
mixes. G. A. Blokh, V. Ya. Demidionova, G. P. Mikluk-
hin, I. I. Kuchenko, A. F. Rekasheva, R. V. Nikulina, and
M. I. Przhebylskiy. *Iskaya Prom.* 15, No. 1, 28-30 (1955).
— Study was with labeled atoms. After 4-6 passes through a
narrow gap between rolls, S was distributed evenly. During
short contact of a raw mix with fabric at room temp., there
was migration of S. There was also migration from vulcan-
ized rubber into the raw mix. During vulcanization,
migration into the fabric layer was not stopped by talc; a
paper layer reduced migration. B. Z. Kamich

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REKASHEVA, A.F.

• Sources and paths of hydrogen in oxidation-reduction re-
actions: VIII. The isotopic effect in the Cannizzaro reac-
tion. G. P. Mikhukhin and A. F. Rekasheva. *J. Gen.
Chem. U.S.S.R.* 23, 1090-1103 (1950) (Russian).
See *C.A.* 56, 3293f. B. M. R.

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REKASHEVA, A.F.
MIKLUKHIN, G.P.; REKASHEVA, A.F.

Investigation of the sources and courses of hydrogen in oxidation-
reduction reactions. Part 8. Isotope effect in Cannizzaro reactions.
Zhur.ob.khim.25 no.6:1146-1152 Je '55. (MLRA 8:12)
(Cannizzaro reaction) (Isotopes--Mass)

REKASHOVA 17.11

2

V Mobility of sulfur in 2-mercapto derivatives of benzimidazole, benzoxazole, and benzothiazole. L. V. Sullima, A. P. Rekasheva, and G. P. Mikiukhin. *Zhur. Obshchei Khim.* 23, 1851-8 (1955). Kinetics of the exchange of S (labeled with S³⁵) with the S content of 2-mercaptobenzimidazole (I), benzoxazole (II), and benzothiazole (III), were examined at 130° and 150°; the results are shown graphically. The rate of exchange decreases in the order III, II, I. Since reduction of concn. of the individual components by a factor of 3 reduces the rate by a factor of 2, the reaction is of a fractional order. The following rate constants (hrs.⁻¹) at 130° and 150°, and activation energies (Cal./mole) were found: III —, 0.365, 24.0; II 9×10^{-4} , 0.047, 27.3; I 2×10^{-4} , 0.018, 34.0. G. M. Kosolapoff

② gpr

Inst. Phys. Chem. im. L. V. Pisarzhevskiy, A S Ukr SSR

REKASHEVA, A. F. A.

10/11/60

V Isotopic exchange of sulfur between hydrogen sulfide and 2-mercaptobenzothiazole. A. F. Rekashova, G. A. Blokh, and G. P. Miklukhin. *Zhur. Obshchei Khim.*, 25, 1831-6 (1955); cf. preceding abstr. The exchange of S between H_2S and 2-mercaptobenzothiazole was studied kinetically by means of H_2S labeled with S^{34} ; the kinetics of the reaction indicate a fractional order of the reaction; at 150° the rate const. in MePh is $0.117/hr.$, with an activation energy of 25.1 kcal./mole . Attempts to use higher temps. were unsatisfactory owing to a chem. reaction that interferes with the simple S exchange. At 160° reaction runs of 10 hrs. duration are satisfactory; but after some 20 hrs. the 2nd reaction interferes to the extent of some 20%. The exchange is believed to proceed by formation of the 2,2-dimercapto deriv. with H_2S , followed by loss of H_2S . G. M. Kosolapoff

10/11/60
Jew

(2)

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 28/52

Authors : Rekasheva, A. F., and Miklukhin, G. P.

Title : Study of hydrogen sources and ways during redox reactions.
Reduction alkylation

Periodical : Dok. AN SSSR 101/4, 689-691, Apr 1, 1955

Abstract : A study of literature data showed that the reduction alkylation reaction takes place as a result of less-active covalent-bound hydrogen atoms and C - H bonds of the reducing agent and not the hydrogen from considerably more polar O - H or N - H bonds. It was found that the isotopic composition of the hydrogen displaced does not experience any change even after being introduced into a medium of an entirely different isotopic composition. The homolytic mechanism of the reduction reaction is explained. Practical results obtained by reduction alkylation are described. Fifteen references: 9 USSR, 3 German, 2 USA and 1 French (1905-1954).

Institution : Acad. of Sc., Ukr-SSR, The L. V. Pisarzhevskiy Inst. of Phys. Chem.

Presented by : Academician A. N. Frunkin, August 11, 1954

REKASHEVA, A. F.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 25/51

Authors : Miklukhin, G. P., and Rekasheva, A. F.

Title : Mobility of hydrogen in salts and derivatives of acetic acid

Periodical : Dok. AN SSSR 101/5, 881-884, Apr 11, 1955

Abstract : The rate of interchange reactions between acetic acid and its salts and heavy water and the ability of these salts to condense with benzoic aldehyde were investigated to determine the mobility of H in these salts. It was found that the mobility of hydrogen in the methyl group of acetic acid and its different salts depends upon the change in chemical nature of the hydrogen substitute. This dependence was explained by the effect of the polarity of the O-M bond on the conjugation of C = O and C-H bonds (sigma-phi conjugation). Seven references: 6 USSR and 1 USA (1938-1952). Table.

Institution : Acad. of Sc., Ukr SSR, The L. V. Piszhevskiy Inst. of Phys. Chem.

Presented by : Academician A. M. Frumkin, September 16, 1954

REKASHEVA, A.F.

USSR/Organic Chemistry. Theoretical and General
Questions of Organic Chemistry.

E-1

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26651.

Author : Rekasheva, A.F., Miklukhin, G.P.

Inst :

Title : Study of Ways of Hydrogen Transfer at
Oxidation-Reduction Reactions. IX.
Leukart's Reaction.

Orig Pub : Zh. obshch. khimii, 1956, 26, No. 8, 2155 -
2161.

Abstract : The mechanism of formation of benzylamine (I)
and α -phenylethylamine (II) from benzaldehyde
(III) and acetophenone (IV) and from HCOONH_4
(V) was investigated using deuterium. I and II
containing D in the α -position were obtained
carrying out the reaction with DCOONH_4 (Va)

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USSR/Organic Chemistry. Theoretical and General
Questions of Organic Chemistry.

E-1

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26651.

at 180 to 190°. It follows from this that hydrogen from the bonds C-H of V is transferred to the carbonyl atoms of III and IV at their transformation into I and II. The ratio of speeds of the transfer of H and D from V to the carbonyl atoms of III and IV equal to 1.5 to 1.6 was found by dividing the content of D in separated I and II by the content of D in the initial Va (Va was taken in an amount not less than of a double or treble excess as referred to III and IV). According to the authors, the received data permit to reject the mechanisms of Leukart's reaction, which surmises that water of hydroxyl groups or other compounds forming in the course of the reaction are the source of hydrogen in the

Card 2/4

MINIUNIK, G. P., REKASHEVA, A. F.

"Study of the Rensel Reactions of Organic Compounds Conducted with the Aid of Deuterium."

Problems Kinetics and Catalysis, v. 9, Isotopes in Catalysis, Moscow, 1956
AN SSSR, 1957. 44pp.

Most of the papers in this collection were presented at the Conf. on
Isotopes in Catalysis which took place in Moscow, May 31 - Apr 9, 1956

MIKIUKHIN, G.P. [deceased]; REKASHEVA, A.F.

Investigation of oxidation - reduction reactions of organic compounds.
with the aid of deuterium. Probl. kin. i kat. 9:117-123 '57.
(Oxidation-reduction reaction) (MIRA 11:3)
(Organic compounds) (Deuterium)

RMKASHOVA, A.F.

Discussion. Probl. kin. i kat. 9:141-142 '57. (MIRA 11:3)
(Deuterium) (Chemical reaction--Conditions and laws)

REKASHEVA, A.F.

Discussion. Probl. kin. i kat. 9:215 '57.

(MIRA 11:3)

(Aldehydes) (Alcohols)
(Oxidation-reduction reaction)

AUTHORS: Dar'yeva, E. P., Miklukhin, G. P.,
(Deceased), Rekasheva, A. E. SOV/79-29-1-57/74

TITLE: Investigation of the Ways of Regrouping of Hydrogen in the
Case of Redox-Reactions (Issledovaniye putey peremeshcheniya
vodoroda pri okislitel'no-vosstanovitel'nykh reaktsiyakh)
XI. Reduction of Benzophenone With Sodium- and Aluminum
Alcoholates as Well as With Alcohols and Sodium (XI. Vosstanov-
leniye benzofenona alkogolyatami natriya i alyuminiya i spir-
tami i natriyem)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1,
pp 269 - 278 (USSR)

ABSTRACT: In continuation of earlier papers (Refs 1-4) the authors in-
vestigated the reduction mechanism of benzophenone with
sodium butylate-, isoamylate and -ethylate in the corresponding
alcohol solutions that were radioactivated with deuterium in
the hydroxyl group as well as with deuterized ethanol (C_2H_5OD)
and butanol (C_4H_9OD) and sodium. This reduction with sodium
alcoholate proceeds in exactly the same way as the reduction
with aluminum alcoholate, i.e. hydrogen from the bonds C-H

Card 1/3

Investigation of the Ways of Regrouping of Hydrogen in the Case of Redox-Reactions. XI. Reduction of Benzophenone With Sodium- and Aluminum Alcoholates as Well as With Alcohols and Sodium

SOV/79-29-1-57/74

of alcohol or alcoholate passes over to the carboxyl carbon atom of benzophenone. The reduction with alcoholates can play an important part in the reduction with alcohols and sodium. In both ways of reduction with sodium in ethanol, temperature is of great importance. At 80-100° the reduction product is diphenyl methane. Its formation proceeds at the expense of the hydrogen in the hydroxyl groups of alcohol. At 125-130° benzhydrol is formed; in most cases the transition of hydrogen from the bonds C-H of alcohol or alcoholates takes place. In the case of reduction with sodium in butanol at 100 and 140° benzhydrol is formed, the isotopic composition of which points to a similar procedure of both processes. The results given in the tables can be explained on the basis of the modern reduction theory with metals. The amount of the kinetic isotopic effect (equal to 1.8 and 1.9 respectively) was determined in the case of reduction of benzophenone and benzaldehyde with isopropyl alcohol in the presence of aluminum propylate $\{ (CD_3)_2CDOH + [(CD)_3CDO]_3Al \}$. These data confirm

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Investigation of the Ways of Regrouping of Hydrogen in 30V/79-29-1-57/74
the Case of Redox-Reactions. XI.Reduction of Benzophenone With Sodium- and
Aluminum Alcoholates as Well as With Alcohols and Sodium

the assumption that for the inner-molecular transition of
hydrogen into the cyclic transition complexes, smaller amounts
of the isotopic effect are a characteristic feature. There
are 3 tables and 26 references, 13 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk Ukrainskoy SSR
(Institute for Physical Chemistry of the Academy of Sciences,
Ukr SSR)

SUBMITTED: December 12, 1957

Card 3/3

S/020/60/133/006/028/031XX
B016/B054

AUTHORS: Rekasheva, A. F. and Samchenko, I. P.

TITLE: Investigation With the Aid of Deuterium of the Mechanism of Hydration on the Basis of Kucherov's Reaction

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6, pp. 1340-1343

TEXT: The authors report on the clarification of hitherto disputed details of the mechanism of Kucherov's reaction [ABSTRACTER'S NOTE: This reaction is not described in the text] by their experiments. The unclear details concern the following problems: 1) Which step of the reaction is decisive for the hydration rate of acetylene? 2) Do the water- or acid molecules participate in the transition complex of the slow step of the reaction (Refs. 2,3)? 3) Of what composition and structure are the mercury intermediate compounds of acetylene which give acetaldehyde by hydrolysis (Ref. 1)? In their experiments, the authors hydrated a) ordinary acetylene with D_2O , and, on the other hand, b) deuterio-acetylene with ordinary water. The resulting acetaldehyde was oxidized with potassium permanganate

Card 1/4

Investigation With the Aid of Deuterium of
the Mechanism of Hydration on the Basis of
Kucherov's Reaction

S/020/60/133/006/028/031XX
B016/B054

in H_2SO_4 solution, to give potassium acetate. Table 1 shows the results of test series a, namely the deuterium content in the hydrating solution before and after the experiment, in CH_3CHO , and in CH_3COOK . From a comparison of these data, the authors conclude that the entire deuterium of acetaldehyde is concentrated in its methyl group. This proves that the deuterium content in the acetate, as compared with that in the aldehyde used, is increased by the elimination of hydrogen from the carbonyl group (by oxidation) at the ratio 4 : 3. Further, Table 1 shows that the deuterium content in acetaldehyde is not reduced to one-half, but to about one-third. This speaks in favor of a strong isotopic effect. For comparison, the authors hydrated deuterium-marked acetylene by ordinary water (test series b, Table 2). They found that here the isotopic effect was eliminated, since during hydration the acetylene molecules only add ordinary hydrogen. From Table 2, the authors conclude that the aldehyde group of the resulting acetaldehyde contains the same amount of deuterium as was present in the acetylene used (according to data in Table 1). Further, the authors conclude from Table 2 that here hydration is

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Investigation With the Aid of Deuterium of
the Mechanism of Hydration on the Basis of
Kuchеров's Reaction

S/020/60/133/006/028/031XX
B016/B054

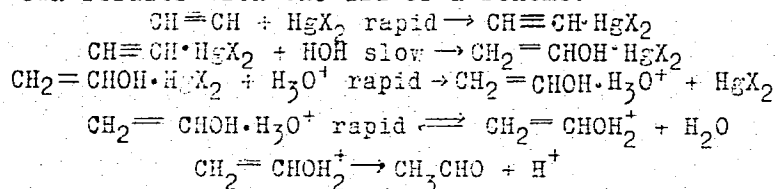
accompanied by a considerable exchange. Hence, it appears that the hydrogen of acetylene which was absorbed by the methyl group of the aldehyde was half substituted by the hydrogen of the medium during hydration. From the degree of exchange (Table 1) during hydration, the authors try to estimate the extent of the kinetic isotope exchange on the passage of hydrogen (from water or acid) to the acetylene molecules. According to current conceptions, two hydrogen atoms are added to acetylene in the formation of acetaldehyde. This is supposed to occur in two steps, one of which may be decisive for the rate of the process. In other words, only the passage of one hydrogen atom can be accompanied by an isotopic effect. The authors calculate the isotopic effect to be about 7.6. The existence of this effect proves clearly that the hydration rate is determined by the step of the passage of one of the hydrogen atoms from the water- (or acid-) molecules. Consequently, the latter molecules constitute part of the transition complex of the slow step. This conclusion contradicts conclusions drawn by R. M. Elid, I. I. Moiseyev, and Ye. M. Kalmykova (Ref.2), who maintained that the activation of acetylene constitutes the slow step of the process, which is not connected with a proton addition. The

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Investigation With the Aid of Deuterium of
the Mechanism of Hydration on the Basis of
Kucherov's Reaction

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B016/B054

authors try to establish an agreement between the said contradiction and
their own results with the aid of a scheme:



There are 2 tables and 5 references: 4 Soviet and 1 German.

ASSOCIATION: Institut fizicheskoy khimii im. L. V. Pisarzhevskogo
Akademii nauk USSR (Institute of Physical Chemistry imeni
L. V. Pisarzhevskiy of the Academy of Sciences UkrSSR)

PRESENTED: February 29, 1960, by M. I. Kabachnik, Academician

SUBMITTED: February 26, 1960

Card 4/4

MIKLUKHIN, Gleb Panteleymonovich [deceased]; Prinimali uchastiye: GRAGEROV, I.P., kand. khim. nauk; REKASHEVA, A.F., dand. khim. nauk; POKROVSKAYA, Z.S., red. izd-vz; RAKHLINA, N.P., tekhn. red.

[Isotopes in organic chemistry] Izotopy v organicheskoi khimii. Ob-
rabotka i dopolneniia I.P.Gragerova i A.F.Rekashevoi. Kiev, Izd-vo
Akad. nauk USSR, 1961. 730 p. (MIRA 14:7)
(Chemistry, Organic) (Isotopes)

REKASHEVA, A.F.

"Der kinetische Isotopieeffekt bei einigen Reaktionen mit Wasserstoffubertagung."

Report presented at the 2nd Conf on Stable Isotopes.

East German Academy of Sciences, Inst. on Applied Physical Material.

Leipzig, GDR 30 Oct-4 Nov '61.

REKASHEVA, A.F.; KIPRIANOVA, L.A.

Mechanism of chain termination in the polymerization of
ethylene under the effect of Ziegler catalysts. Vysokom.
soed. 3 no.10:1446-1448 0 '61. (MIRA 14:9)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo
AN USSR.

(Ethylene) (Polymerization)

REKASHEVA, A.F. [Rekashova, H.F.]; YANKOVSKIY, V.D. [IAkovs'kyi, V.D.]

Production and some properties of the new synthetic blood stabilizer
synanthrin C (Synantrol 20). Fiziol. zhur. [Ukr.] 7 no.5:676-681
S-O '61. (MIRA 14:9)

1. Laboratory of Age and Comparative Physiology of the A.A.Bogomoletz
Institute of Physiology of the Academy of Sciences of the Ukrainian
S.S.R., Kiev.

(ANTICOAGULANTS (MEDICINE))

(SYNANTROL 20)

GRAGEROV, I.P.; REKASHEVA, A.F.; TARASENKO, A.M.; LEVIT, A.F.; SAMCHENKO, I.P.

Syntheses of certain organic compounds labeled with O^{18} .
Zhur. ob. khim. 31 no.4:1113-1119 Ap '61. (MIRA 14:4)

1. Institut fizicheskoy khimii imeni L. V. Pisarzhevskogo
Akademii nauk Ukrainskoy SSR.
(Oxygen---Isotopes)

SAMCHENKO, I.P.; REKASHEVA, A.F.

Exchange kinetics of acetate groups between vinyl acetate
and acetic acid. Zhur. fiz. khim. 39 no.4:859-864 Ap '65.
(MIRA 19:1)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

GELLER, B.A.; NEYMARK, I.Ye.; RUBANIK, M.Ya.; GRAGEROV, I.P.; POLYAKOV,
M.V.; RUSOV, M.T.; DAIN, B.Ya.; REKASHEVA, A.F.; STRAZHESKO,
D.N.; LUNENOK, V.A.; ROYTER, V.A.; SULIMA, L.V.; POMENKO, A.S.

Aleksandr Il'ich Brodskii, 1895-- ; on his seventieth birthday.
Zhur. fiz. khim. 39 no.6:1540-1541 Je '65.

(MIRA 18:11)

GRAGEROV Isaak Petrovich, doktor khim. nauk, otv. red.;
REKASHEVA, Anna Fedorovna; LUNENOK-BURMAKINA, Valentina
Arsent'yevna; SHTUL'MAN, I.F., red.

Aleksandr Il'ich Brodskii. Kiev, Naukova dumka, 1965.
39 p. (MIRA 18:10)

REKASHEVA, A.F.; KIPRIANOVA, I.A.

Hydrolysis of vinyl ethers. Part 3: Mechanism of the reaction
with mercury sulfate as catalyst. Kin. i kat. 5 no.2:299-304
Mg-Ap '64. (MIRA 17:8)

1. Institut fizicheskoy khimii imeni Pisarzhevskogo AN UkrSSR.

KIPRIANOVA, L.A.; REKASHEVA, A.F.

Kinetics of hydrolysis of vinyl esters during catalysis
by mercury ions. Dokl. AN SSSR 154 no.2:423-426 Ja'64.
(MIRA 17:2)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
AN UkrSSR. Predstavleno akademikom A.N. Frumkinym.

KIPRIANOVA, L.A.; REKASHEVA, A.F.

Preparation of vinyl esters tagged with O^{18} . Ukr. khim.
zhur. 29 no.10:1064-1066 '63. (MIRA 17:1)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
AN UkrSSR.

KIPRIANOVA, L.A.; REKASHEVA, A.F.

Kinetics and mechanism of the alkaline hydrolysis of vinyl esters. Dokl. AN SSSR 153 no.3:642-645 N '63.

(MIRA 17:1)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo AN UkrSSR. Predstavleno akademikom A.N. Frumkinym.

REKASHEVA, A.F.; SAMCHENKO, I.P.

Mechanism of reductive degradation of dimethylamino derivatives of triphenylmethane. Zhur. ob. khim. 33 no.5:1523-1529
My '63. (MIRA 16:6)

1. Institut fizicheskoy khimii imeni L.V. Pisarzhevskogo AN
UkrSSR.

(Triphenylmethane dyes)
(Reduction, Chemical)

REKASHEVA, A.F.; SAMCHENKO, I.P.

Mechanism underlying the Kucherov reaction. Part 2:
Isotopic effect in the reactions of acetylene with
acetic acid. Ukr.khim.zhur. 28 no.9:1054-1060 '62.
(MIRA 15:12)

1. Institut fizicheskoy khimii im. L.V. Pisarzhevskogo
AN UkrSSR.

(Acetylene)

(Acetic acid)

(Deuterium compounds)

KIPRIANOVA, L.A.; REKASHEVA, A.F.

Mechanism of vinyl ester hydrolysis. Hydrolysis of vinyl
acetate and vinyl benzoate. Dokl.AN SSSR 144 no.2:386-389
My '62. (MIRA 15:5)

1. Institut fizicheskoy khimii im. L.V.Pisarzhevskogo AN USSR.
Predstavleno akademikom V.N.Kondrat'yevym.
(Vinyl acetate) (Benzoic acid) (Hydrolysis)

KIPRIANOVA, L.A.; REKASHEVA, A.F.

Mechanism of vinyl ether hydrolysis. Hydrolysis of vinyl ethyl, vinyl isopropyl, and vinyl-n-butyl ethers. Dokl. AN SSSR 142 no.3: 589-592 Ja '62. (MIRA 15:1)

1. Institut fizicheskoy khimii im. L.V.Pisarzhhevskogo AN USSR.
Predstavleno akademikom M.I.Kabachnikom.
(Ethers)

REKASHEVA, T. N.

"Some Generalizations of the 'Metal' Model for Computation of Complex Molecules."
Cand Phys-Math Sci, Leningrad State U, Leningrad, 1954. (RZhFiz, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher
Educational Institutions (12)

SO: Sum. No. 556, 24 Jun 55

VESELOV, M.G.; REKASHEVA, T.M.

Calculating the induction effects in the "metallic" model of molecules.
Vest.Len.un.9 no.5:149-151 My '54. (MLRA 9:7)
(Molecules)

REKASHEVA, T. N.

USSR/ Physics - Complex molecules

Card 1/1 Pub. 43 - 41/62

Authors : Veselov, M. G., and Rekasheva, T. N.

Title : Certain generalizations of the "metallic" model in the theory of complex molecules

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 711-712, Nov-Dec 1954

Abstract : A review is made of certain complications involved in the use of the "metallic" model of molecules with conjugated bonds for systems with incomplete equalization of simple and double bonds and for the calculation of the induction effect in conjugated systems. Means of neutralizing the complications are described. Tables.

Institution : The A. A. Zhdanov State University, Physics Inst., Leningrad

Submitted :

REKASHEVA, T. N.

USSR/ Chemistry Physical chemistry

Card : 1/1

Authors : Rekasheva, T. N.

Title : Use of a "metallic" model in calculations of polyene chains

Periodical : Zhur. fiz. khim. 28, Ed. 6, 1129 - 1135, June 1954

Abstract : A complicated model of a potential box, consisting in the introduction of potential barriers at points of simple bonds, was suggested for the calculation of molecules - polyene chains with partial bond equilibrium. Quantum-mechanical calculations of absorption frequencies and oscillation forces, on the basis of such a complicated model, were made for butadiene and hexatriene molecules. The calculated absorption frequencies and oscillation forces, are shown in table. Five USA, 1 German and 1 English reference. Graphs.

Institution : The A. A. Zhdanov State University, Leningrad

Submitted : November 30, 1953

Rekasheva, T. N.

"Metallic" model of the chlorobenzene molecule. T. N. Rekasheva (Shipbuilding Inst., Leningrad). *Zhur.* ~~29~~ 1404-9 (1955). By use of the more elaborate "metallic" model of PhCl (cf. *Vestnik Leningrad. Univ.* No. 5, 149 (1954)) the energy levels of the electrons that participate in the electron conjugation were calcd. The frequency found, corresponding to the longest wave absorption, agreed satisfactorily with the exptl. data. The dipole moments of the π bonds of the chlorobenzene mol. were calcd., and found to be close to the exptl. value of the mol. dipole moment. This result may be considered satisfactory, because the share of the dipole mol. moment attributable to the σ bond probably is not large. The mobile electron distribution d. along the perimeter of the benzene ring is indirectly confirmed by chem. data. Cf. *C.A.* 50, 7537f.

W. M. Sternberg

PM LFH

Chen 8/4

RENASHOVA, T. N.

✓ The "metallic" model as applied to the peroxide molecule.
 T. N. Renashova (Leningrad Ship-Building Inst.). Zhur.
 No. 30, 1273-81 (1950). Cf. Vents' Leningrad.
 Univ. 5, 149 (1954). The energy levels of the electrons
 which form the conjugated bonds were cited on the basis
 of a complex "metallic" model for the acrolein mol. The
 dipole moment, frequency for the long-wave transition in ab-
 sorption, and the oscillator strength for this transition were
 calculated and found to agree well with exptl. values.
 — L. Rostk-Lech.